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2. That it is more durable.
3. That from the simplicity of its parts, it may be readily put together by persons wholly unacquainted with any of the mechanic arts connected with building.
4. That the covering can be more easily and more effectually repaired than that of any other roof whatever.

And its general merit in common with other cast-iron roofs, is the resistance which it opposes to fire, and the little injury it is likely, itself, to suffer from it.

Specification of the Patent granted to Joseph Baker, of Butler's-Green, near Cuckfield, in the County of Sussex, Navy-contractor; for kneading Dough by means of Machinery.

Dated Nov. 23, 1811.

To all to whom these presents shall come, &c. Now know ye, that in compliance with the said proviso, I the said Joseph Baker do hereby declare, that the nature of my said invention is as follows; that is to say: The principle of the invention for kneading dough is to amalgamate flour, or meal, or pulse, of any kind, with water, in a circular trough, having an upright shaft, turning on a pivot, fixed in the centre of the machine, so that the dough placed in such trough may be kneaded by a stone or iron roller, on its edge, passing over it in a rotary motion, being fixed at a due distance, by an horizontal bar or axle to the shaft, which is to be turned by means of one or more other horizontal bars likewise fixed thereto, and worked like a capstern, by a proportionate number of bipeds or quadrupeds, such horizontal bars having small shares fixed to them, so as to run in the trough, and, acting like a plough, cause the dough to present fresh surfaces for each successive revolution.

This kneading machine may be made in metal of any kind, or wood of any kind, or thin compositions or combinations; perhaps the preferable way would be to make the foundation of brick or stone, to make the trough of stone or iron, to make the upright shaft of wood, cramp'd with iron, and the steps in which the iron pivots are, of flint or metal, and the shares of iron.

Observations by the Patentee.

This mode of kneading dough, it is hoped, will not only do away the present method of hand-working, which is imperfect and expensive, but may be the means of abolishing the more general and filthy practice of kneading, by treading with the feet, where the business of baking is carried on to any considerable extent. It is almost needless to remark, that the quantity of water absorbed, and the good quality of the bread, depends much on good kneading; and that lightness and taste are much improved by the dough receiving the necessary working. To those, therefore, who are attentive to these particulars, this invention affords the means of great saving. In making biscuits for the use of shipping, the advantage is considerable, both in regard to taste and the power of keeping.

Specification of the Patent granted to John Miers, of the Strand, in the precinct of the Savoy, in the County of Middlesex, Jeweller; for a method of accelerating the Evaporation of fluid or liquid Bodies, of destroying the noxious and offensive Effluvia arising from spent Lees, or other liquid, fluid or solid substances, and of generating an increased degree of heat, without additional Fuel.

Dated October, 30, 1811.

To all to whom these presents shall come, &c. Now know ye, that in

compliance with the said proviso, I, the said John Miers, do hereby declare, that the nature of my said inventions, and the manner in which the same are to be performed, are described and ascertained in the following explanation thereof; that is to say: That in the construction of vessels used for the evaporation of fluid bodies, and their appurtenances, it be provided that all, or part of the air which feeds the fire, shall first pass over the surface of the evaporating matter.

This process consists, first, in the continual or occasional introduction of fresh air, heated or not, to take up the aqueous and other vapours as they are generated; and, secondly, in the rapid removal of the air, (charged therewith), by the current occasioned by the fire. This removal of the vapours as they form, promoting the disposition of the fluid to convert itself into steam, greatly accelerates the rate of evaporation, and consequently saves much time and expense.

This is effected by covering the top of the vessel in which the evaporation takes place, leaving open one part for the admission of hot or cold air, and at the opposite end, or other part or parts, placing a flue, or other conveyance or conveyances, to conduct the air and vapours to the ash-pit, or in any other way that they may pass through the fire, it being understood that the usual entrance to the ash-pit is closed. By these means, the strong current of air produced by the action of the fire is drawn over the surface of the evaporating bodies.

Another essential part of this invention is to destroy the offensive and noxious effluvia which oftentimes arise in the evaporation of fluids, or in the distillation or calcination of solid bodies. Any offensive or noxious effluvia arising in the evaporation of fluids are destroyed

by the process just described, or by any other method that will cause the effluvia to pass through the fire. But in the distillation or calcination of solid bodies, the processes already described are applicable only in some cases; in others the effluvia must be conducted through a heated or ignited tube or tubes, through which, at the same time, is also transmitted a steam of aqueous vapour, or in which heated or ignited tube or tubes are introduced or placed, carbonaceous or other bodies, that will either abstract the hydrogenous part of the effluvia, or yield oxygen that will combine with the effluvia, according to the nature of the stench to be destroyed. By these means the effluvia are divested of their offensive qualities.

Hence evaporation is accelerated, and offensive effluvia destroyed; and while these objects are accomplishing a saving of fuel is obtained: for the vapours arising from most fluids contain not only a combustible principle, but that also which supports combustion; which vapours, when brought into contact with ignited carbonaceous matters, as occur in the processes above described, undergo a decomposition, and evolve a considerable degree of heat.

In witness whereof, &c.

Observations by the Patentee.

This patent it will be seen, embraces three objects: the first of which promises to become of the greatest importance in all manufactures where evaporation is an object, such as salt, alum, copperas works, &c. It is founded on the well-known fact, that a frequent change of the incumbent air assists in raising a fluid to the state of vapour. The means proposed are simple and obvious; the air required to feed the fire is made to pass over the surface of the boiling liquor in a rapid current; and from actual experiment it has

been found, that on this plan evaporation is effected in two-thirds the time of the usual method. But this invention is the more practically useful, as it requires no trouble or attention in its execution, as it may be easily applied to common boilers at a very trifling expense, requiring only a different mode of constructing the avenue to the fire-place, and a cover to the boiler. It must hence prove a material saving of time and of expense of fuel, objects of considerable advantage to all manufactoryes where evaporation is carried on to any great extent. It has been imagined by many, that the aqueous vapour in passing through the fire would tend to extinguish it; but this, from experiment, is found to be the very reverse; for the aqueous vapour is decomposed by the carbonaceous matter of the fire, and thus assists in generating an additional heat, yielding in fact, a new description of fuel, without any extra expense. On this the patentee has grounded his third enumerated invention.

The second part of this invention is likewise of considerable importance to all manufactoryes where offensive smells are generated, such as soap-makers, recoverers of spent soap-lees, tallow-melters, blubber and oil boilers, &c. Unpleasant vapours, arising from liquids, are obviously removed by this simple process for accelerating evaporation, where all vapours, being necessarily carried through the fire, are there decomposed. But when smells arises from matters exposed to heat in a reverberatory furnace, other remedies are provided: in such cases, for instance, where the alkaline sulphates are decomposed with a view to extract the alkali, (as in the recovery of spent soap lees, &c.) immense volumes of sulphurated hydrogen gas are sent out, that become an almost insupportable nuisance to all surrounding in-

habitants. It is well known, that many of the most eminent chemists have been engaged in searching for something to decompose this noxious gas, but all their attempts have failed, either from the expense of their processes, or from the proposed remedies retarding the progress of the works. The patentee is enabled to furnish a medium, that effectually decomposes this offensive gas, and yet adding but little or no expense to the common processes, by his discovery, that at a high temperature sulphurated hydrogen gas is decomposed by aqueous vapour, a fact that has hitherto escaped the notice of chemists. From this, he expects shortly to be able to open to the chemical world some interesting facts, which will add much simplicity to that noble science by reducing the number of its elements. To effect this desirable object, no other contrivance is required, than to cause the flue to return, and to make it pass over or behind the same fire, having previously introduced into it a stream of aqueous vapour: by these means the offensive gas and the vapour of water, passing through a red-hot flue, form new combinations, and the air comes out of the chimney without the least smell*. To all manufactoryes which generate smells, that are either prejudicial to the persons employed therein, or unpleasant to surrounding neighbours, this invention will prove the means of removing the same, and will enable works of the first importance to be carried on in the heart of great cities, which have hitherto been through necessity removed far off.

* An additional advantage of great importance to the public health and comfort is afforded by this process. The black smoke, which issues so copiously from large furnaces, will be consumed by the aqueous vapour in passing through the red-hot flue.